



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,252	11/26/2003	Brian C. Demsky	MIS-00401	6061

7590 07/26/2005

Patent Group
Choate, Hall & Stewart
Exchange Place
53 State Street
Boston, MA 02109-2804

EXAMINER

BONZO, BRYCE P

ART UNIT	PAPER NUMBER
----------	--------------

2114

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,252

Applicant(s)

DEMSKY ET AL.

Examiner

Bryce P. Bonzo

Art Unit

2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on December 3rd, 2004 (PCT).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7-15, 20-24, 26-28, 30, 33 and 39-75 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 16-19, 25, 29, 31, 32 and 34-38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Art Unit: 2114

Non-Final Official Action

Status of the Claims

Claim 39-75 are rejected under 35 USC §101.

Claims 1-3, 5, 7-15, 20, 21, 39-41, 43, 45-53, 58 and 59 are rejected under 35 USC §102(b).

Claims 22-24, 26-28, 30, 33, 60-62, 64-66, 68 and 71 are rejected under 35 USC §102(e).

Claims 4, 6 16-19, 25, 29, 31, 32, 34-38, 42, 44, 54-57, 63, 67, 69, 70 and 72-75 are objected to while containing allowable matter.

Rejections under 35 USC §101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 39-75 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Applicant has claimed a program product without clearly claiming the invention is limited to stored code executing on a processor. As such Applicant has claimed a computer program per se and the associated data structures. As such these claims fail to fall into a statutory class of invention.

Rejections under 35 USC §102

Art Unit: 2114

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 7-15, 20, 21, 39-41, 43, 45-53, 58 and 59 are rejected under 35 U.S.C. 102(b) as being anticipated by Jas (United States Patent Publication No. US 2002/0059260 A1).

As per the claims, Jas discloses:

1. A method for detecting an inconsistent data structure comprising:

receiving a specification describing at least one consistency constraint of a data structure (page 4, ¶56-62); and

dynamically determining during execution of a program whether said data structure violates said at least one consistency constraint (page 6, ¶81).

2. The method of claim 1, wherein said specification comprises at least one logical formula (page 4, ¶56-62).

Art Unit: 2114

3. The method of claim 2, wherein said specification includes at least one consistency constraint expressed in terms of said data structure (page 4, ¶61).

5. The method of claim 3, wherein said specification includes a description of said data structure (page 4, ¶56).

7. The method of claim 1, further comprising:

representing said data structure as an abstract model (page 4, ¶56); and

determining consistency constraint violations of said abstract model (page 5, ¶71).

8. The method of claim 7, wherein said specification includes a description of said data structure (page 4, ¶61).

9. The method of claim 8, wherein said specification includes an abstract model definition (page 4, ¶61).

10. The method of claim 9, wherein said specification includes an internal constraint in terms of said abstract model definition (page 4, ¶61).

11. The method of claim 10, further comprising: determining if said internal constraint is violated in accordance with an evaluation of said internal constraint (page 4, ¶71).

12. The method of claim 11, wherein said specification includes at least one external constraint mapping elements of said abstract model to elements of said data structure (page 6, ¶180).

13. The method of claim 10, wherein said description of said abstract model includes at least one model definition rule and at least one declaration for one of: a set and a relation, said at least one model definition rule representing an element of said data structure in at least one of a set and a relation (page 4, ¶55-56).

14. The method of claim 13, wherein said specification includes at least one external constraint mapping elements of said abstract model to elements of said data structure (page 6, ¶180).

15. The method of claim 1, wherein said dynamically determining is performed in response to at least one of: an explicit call and a transfer of control to an error handler (page 9, ¶105: creation and modification are explicit calls).

20. The method of claim 1, further comprising: determining whether a memory reference in connection with said data structure is valid in accordance with currently allocated memory of said program (page 5, ¶72).

Art Unit: 2114

21. The method of claim 1, further comprising: repairing said data structure if said data structure violates said at least one consistency constraint (page 8, ¶¶94 repair by deletion).

Claims 39-41, 43, 45-53, 58 and 59 are the computer program product embodiments of the method of dynamic repair as disclosed in claims 1-3, 5, 7-15, 20 and 21. As such the claims 39-41, 43, 45-53, 58 and 59 are rejected on the same portions of Jas and the supporting paragraphs providing the programming structure.

Claims 22-24, 26-28, 30, 33, 60-62, 64-66, 68 and 71 are rejected under 35 U.S.C. 102(e) as being anticipated by Applin (United States Patent Application Publication US 2004/0015876 A1).

As per the claims, Applin discloses:

22. A method of dynamically repairing an inconsistent data structure during program execution comprising:

receiving at least one inconsistency violation (page 2, ¶¶15);

selecting a repair to correct said at least one inconsistency violation (page 2, ¶¶16); and

repairing said inconsistent data structure (page 2, ¶¶16: recovery state).

Art Unit: 2114

23. The method of claim 22, further comprising: resuming execution of said program (page 2, ¶16: continue with reduced functionality).

24. The method of claim 22, further comprising: performing said repair and satisfying said consistency constraint (page 2, ¶16: waiting for user to repair).

26. The method of claim 22, further comprising: repairing said inconsistent data structure in accordance with an internal consistency constraint (page 2, ¶16: waiting for user to repair).

27. The method of claim 22, further comprising: selecting a repair from a plurality of repairs in accordance with a cost associated with each repair (page 2, ¶16: waiting for user repair or automatically switching to recovery mode: the cost has been evaluated in time).

28. The method of claim 27, wherein said cost is user specified (page 2, ¶16: the user programs the program to carry out one option or the other).

30. A method of handling an invalid memory reference comprising:

determining whether a memory reference associated with an operation is invalid (Page 2, ¶15); and

if said memory reference is invalid, performing a substitute action selected in accordance with said operation in place of performing said operation (page 2, ¶16).

33. The method of claim 30, wherein said invalid memory access is determined during execution of said program (page 2, ¶16).

Claims 60-62, 64-66, 68 and 71 are the computer program product embodiments of the method of dynamic repair as disclosed in claims 22-24, 26-28, 30 and 33. As such the claims 60-62, 64-66, 68 and 71 are rejected on the same portions of Jas and the supporting paragraphs providing the programming structure.

Allowable Matter

Claims 4, 6 16-19, 25, 29, 31, 32, 34-38, 42, 44, 54-57, 63, 67, 69, 70 and 72-75 are objected to while containing allowable matter. Applicant is reminded the claims are indicated allowable as a whole and that any modification to the claims may jeopardize this indication for allowable subject matter. The features which overcome the prior art indicated in italics below.

As per claims 4, 6, 42 and 44:

4. The method of claim 3, wherein, *prior* to dynamically determining whether said data structure violates said at least one consistency constraint, *it is determined whether*

Art Unit: 2114

repairing the data structure according to the at least one consistency constraint will terminate.

As per claims 16-18 and 54-56:

16. The method of claim 13, wherein, *prior* to dynamically determining whether said data structure violates said at least one consistency constraint, *it is determined whether construction of said abstract model will terminate.*

As per claims 19 and 57:

19. The method of claim 8, wherein, *prior* to dynamically determining whether said data structure violates said at least one consistency constraint, *it is determined whether repairing said internal constraints will terminate.*

As per claims 25 and 63:

25. The method of claim 22, wherein said inconsistent data structure is *represented in an abstract model*, and the method comprising:

repairing said abstract model in accordance with an internal consistency constraint; and

applying a repair to the inconsistent data structure in accordance with an external constraint translating said repair from said abstract model to said inconsistent data structure.

As per claims 29 and 67:

29. The method of claim 27, wherein *said inconsistency violation includes a plurality of conditions*, and the method further comprising: determining which of said plurality of conditions are true; and *determining a cost for repairing said inconsistency violation in accordance with those conditions that are not true.*

As per claims 31,32-38 and 69, 70, 72-76:

31. The method of claim 30, further comprising: *if said memory reference is associated with a read operation, supplying a default value as a result of performing said read operation; and if said memory reference is associated with a write operation, disregarding said write operation.*

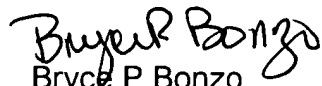
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryce P. Bonzo whose telephone number is (571)272-3655. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2114

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Bryce P Bonzo
Primary Examiner
Art Unit 2114